STATE FOREST LAND
ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decided whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can. Highlighted questions are supplemental to the standard SEPA checklist. These questions look at the proposed project in relationship to the surrounding landscape. Adjacency and landscape/watershed-administrative-unit (WAU) maps for this proposal are available on the DNR internet website at http://www.dnr.wa.gov under "SEPA Center." These maps may also be reviewed at the DNR regional office responsible for the proposal. This checklist is to be used for SEPA evaluation of state forest land activities.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later. All of the questions are intended to address the complete proposal as described by your response to question A-11. The proposal acres in question A-11 may cover a larger area than the attached forest practice application acres, or the actual timber sale acres.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered " does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON PROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer" and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

   Timber Sale Name: **East Hedrick** Agreement #: **30-075011**

2. Name of applicant: **Department of Natural Resources**

3. Address and phone number of applicant and contact person:

   Northwest Region
   919 North Township Street
   Sedro-Woolley, WA 98284

   Contact Person: **Candace Johnson**
   Telephone: **(360) 856-3500**

4. Date checklist prepared: **08/13/03**

5. Agency requesting checklist: **Department of Natural Resources**

6. Proposed timing or schedule (including phasing, if applicable):

   a. Auction Date: **05/24/ 2004**
   b. Planned contract end date (but may be extended): **09/30/2006**
   c. Phasing: **None**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   Timber Sale

   a. Site preparation: **None planned**
   b. Regeneration Method: **Hand plant**
   c. Vegetation Management: **Hand slashing or chemical treatment needs will be assessed in second and fifth year after harvest.**
   d. Thinning: **Pre-commercial thinning treatment needs will be assessed in 15 to 18 years after planting.**

   Roads: **The CN-1000, BM-2000, BM-2100, and BM-2120 roads will remain open for stand maintenance, road maintenance, and access future stands and rock.**

   Rock Pits and/or Sale: **The Nolte State Rock Pit will continue to be used as a rock source for road maintenance of managed roads and new road construction for timber harvests in the vicinity through the next decades.**

   Other: **None**

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

☐303 (d) – listed water body in WAU: ☐temp ☐sediment ☐completed TMDL (total maximum daily load):
☐Landscape plan:
☒Watershed analysis: **Warnick WAU, 1993, Available at NW Region office**
☐Interdisciplinary team (ID Team) report:
☒Road design plan: **Available at the NW Region office**
☐Wildlife report:
☐Geotechnical report:
☒Other specialist report(s): **Region Hydrologist/Soils Specialist Memo dated August 11, 2003, available at the Northwest Region office**
☐Memorandum of understanding (sportsmen's groups, neighborhood associations, tribes, etc.):
☒Rock pit plan: **Available at the NW Region office**
☒Other: **State Soil Survey 1992; Forest Resource Plan Environmental Impact Statement 1992; Final Habitat Conservation Plan (HCP) and Environmental Impact Statement, dated 1997, available at Region Office.**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. **No**

10. List any government approvals or permits that will be needed for your proposal, if known.

☒HPA ☒Burning permit ☐Shoreline permit ☐Incidental take permit ☒FPA # _____ ☐Other:

11. Give brief, complete description of our proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include specific information on project description.)

a. Complete proposal description:

Sale and Harvest of Timber

Estimated Harvest Volume: 2,989 MBF.
Area in Acres: 100 (95 Net)
Largest unit: 100 acres (95 Net) See timber sale map.
Logging system: Cable/high lead; feller/buncher and/or tracked grapple equipped excavator(shovel) along roads.

Roads: Use of existing CN-1000, BM-2000, BM-2100, & BM-2120 forest roads. Construct 4,993 feet of temporary forest access roads (logging spurs to be abandoned upon completion of sale). Roughly 3000 feet of new construction will occur on abandoned grades and involve the reinstallation of culverts in four small type-four streams.
Rock Pits/excavation source: On site rock may be used if found while excavating the road prism. Rock for surfacing, ballast and rip-rap may come from the Nolte State Rock Pit developed in Section 20, Township 40 North, Range 6 East.

This proposal reviewed about 185 acres while planning an even-aged regeneration harvest. During reconnaissance of the proposal area, type four streams, mass wasting management units, unproductive sites and areas below minimum harvest age were identified. After buffering sensitive features and considering other factors such as existing roads, logical harvest breaks and rotation age of stands, this proposal was reduced to a 100 acre (gross) harvest area. Within the harvest boundary, seven percent of all trees equal to or greater than 12 inches dbh are marked to remain standing as wildlife recruitment trees, reducing net harvest acreage to 95. The harvest area will be replanted with Douglas fir and/or western red cedar seedlings one planting season after harvest.

b. Timber stand description pre-harvest (include major timber species and origin date), type of harvest, overall unit objectives.

The proposal area lies within the West Cascade Hemlock vegetation zone, with most timber originating during the early 1940's. DNR database maps the sale area as 26 to 50 years old. Core samples taken from trees on site show most of the proposal area is closer to 65 years. Smaller areas of the sale area originated around 1958. Species consist of western hemlock and silver fir with a small scattered component of Douglas fir and western red cedar. Few hardwoods are found on site. The stand is mostly uniform, snag poor and partially infected with hemlock dwarf mistletoe. Small pockets of blowdown and a five-acre blowdown area have created gaps in the canopy and provided dense down woody debris in places. Most trees have achieved a dbh between 10 and 24 inches and heights up to 110 feet. Productivity is a higher elevation site-class 3. Most of the stand lacks understory vegetation except near edges or in openings. This regeneration sale will be logged by a combination of highlead (cable) systems and tracked grapple-equipped excavator (shovel) and/or feller/buncher on slopes under 25%.

Objectives: This proposal will generate revenue for the Forest Board Trust (01); minimize soil and water quality impacts; buffer a type-four stream; provide access for forest management activities; retain and enhance future long and short term forest structural diversity; protect habitats and functions of typed waters; meet or exceed requirements of the Warnick Watershed Analysis (WA), HCP, Forest Resource Plan and Forest Practice Rules.

c. Road activity summary. See also attached forest practice application (FPA) for maps and more details.

Type of Activity	How Many	Length (feet) (Estimated)	Acres (Estimated)	Fish Barrier Removals (#)
Construction		4,993	1.8	0
Reconstruction		0		0
Maintenance				0
Abandonment		5,539	2.0	0
Bridge Install/Replace	0			0
Culvert Install/Replace (fish)	0			0
Culvert Install/Replace (no fish)	6			

12. Location of proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. (See attached timber sale map. See also color landscape/WAU map on the DNR website http://www.dnr.wa.gov under "SEPA Center.")

a. Legal description: **Sale area- SE1/4 Section 11, and SW1/4 Section 12, Township 39 North, Range 06 East, W.M. Nolte Pit- SE1/4 Section 20, Township 40 North, Range 06 East, W.M.**

b. Distance and direction from nearest town (include road names): **Follow SR-542 to MP 32.4, turn south 0.2 miles, south again on CN-1000 2.7 miles to sale boundary. Glacier is less than one mile east from turnoff on SR-542.**

c. Identify the watershed administrative unit (WAU), the WAU Sub-basin(s), and acres. (See also landscape/WAU map on DNR website http://www.dnr.wa.gov under " SEPA Center.")

WAU Name	WAU Acres	Proposal Acres		Sub-basin	Acres	Proposal Acres
Warnick	**14,373**	**100**		**Hedrick**	**1,349**	**96**
				West Cornell	**2,094**	**4**

13. Discuss any known future activities not associated with this proposal that may result in a cumulative change in the environment when combined with the past and current proposal(s). (See digital ortho-photos for WAU and adjacency maps on DNR website http://www.dnr.wa.gov under "SEPA Center" for a broader landscape perspective.)

The following information is derived from local knowledge, Region WAU maps (01/31/03), DNR Planning and Tracking database and Region WAU SEPA reports and maps (08/2003).

This proposal is located on the north slopes of Slide Mountain. DNR manages the majority of the western part of the Warnick WAU while private land is managed in the far east portions of the WAU. The table below refers to information taken from the State GIS database.

Name of WAU	Total Acres	DNR Managed Forested Acres	Private Managed Forest Acres	Percent DNR Managed Forestland	Percent Private Managed Forestland	Hydrologically Mature DNR Managed Land	Percent Hydrologically Mature DNR Managed Land	Proposal Acres
Warnick	**14,373**	**8,183**	**6,190**	**57%**	**43%**	**5,672 acres**	**69%**	**100**

The vast majority of the sale area is in the Hedrick Creek sub-basin (57% is DNR land). Within this sub-basin, there are no other sales scheduled in the near future, no sold sales and no other stands have been harvested during the past seven years on DNR managed lands. A number of regeneration harvests have occurred in the recent past on adjacent private lands. Less than half of the significant rain-on-snow zone (SROS) is on DNR lands and is not managed for rain-on snow. 70% of the SROS zone on DNR-managed lands will remain in hydrologic maturity (>=25 years) upon completion of this proposal.

A small portion of the southeast proposal area lies within the West Cornell Creek sub-basin (41% is DNR land). No harvests are scheduled in the near future and no others have occurred during the past seven years on DNR lands. Recent Even-aged harvests have occurred on private lands within this sub-basin. Only 23% of the SROS zone is managed by the DNR. Upon completion of this proposal, 97% of DNR lands in the SROS zone will remain hydrologically mature in West Cornell.

Within the Warnick WAU, 263 acres of state timber have been harvested during the past three years and include the Riverview, Biscuits, Horse Fly and Single Tree sales. The 100-acre unsold Rusty Can sale may be harvested during the next two years. These sales, combined with the current proposals and all other activities on DNR lands, will result in a hydrologic maturity of 68% in the Warnick WAU on DNR land. Water quality in downstream 303(d) listed streams will not be affected.

Harvests during Past 7 Years

WAU	DNR		NON-DNR	
	Even age harvest acres	Un-Even age harvest acres	Even age harvest acres	Un-even age harvest acres
Warnick	**395**	**32**	**622**	**518**
Hedrick sub	**2**	**2**	**66**	**34**
W Cornell sub	**0**	**0**	**250**	**0**

***Disclaimer: This information is based upon the best available information and maps produced on* 08/13/03.**

Cumulative impacts are mitigated through Standard Forest Practice Rules, prescriptions of the Warnick WA and implementation of HCP requirements. Issues considered and mitigated include unstable slopes, water quality issues, erosion and wildlife habitat concerns in order to avoid potential environmental impacts to the area. Areas with unstable slopes were eliminated from the harvest area. To mitigate water quality issues and erosion, roads will be surfaced with gravel and have adequate drainage structures to maintain natural drainage patterns. A type-4 stream will have a no-cut buffer zone to reduce potential sediment delivery. Road construction and ground-based harvesting will be restricted to the dry season to minimize erosion. Riparian Management Zones and associated leave trees will serve to enhance diversity, provide potential wildlife habitat and aid in soil protection. A total of 800 wildlife trees have been retained to further enhance structural and spatial diversity. New road construction will be abandoned at the conclusion of the sale. The site will be replanted during the first planting season after harvest. In accordance with current DNR 25/50 procedures, a minimum of 50% of the Warnick WAU will retain stands in an age class of at least 25 years. All active, proposed and planned future activities will continue to follow the Forest Practices Rules, Forest Resource Plan, Implementation Agreement, Incidental Take Permits, the Warnick WA and HCP. This will ensure that all environmental issues are adequately mitigated, and the chance of environmental impact is minimized. .

Elements and Mitigation

Earth: **B.1.d.5) & B.1.h.**
Surface Water: **B.3.a.1)c) & B.3.a.14)**
Plants: **B.4.d.**
Animal: **B.5.d.**
Aesthetics: **B.10.c.**

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (check one):
☐Flat, ☐Rolling, ☐Hilly, ☐Steep Slopes, ☒Mountainous, ☐Other:

1) General description of the WAU or sub-basin(s) (landforms, climate, elevations, and forest vegetation zone).
The Warnick WAU is defined by the North Fork Nooksack River and the northern slopes of Slide Mountain. It is comprised of mountainous forested slopes that drain into the middle portions of the North Fork Nooksack River. Characteristic aspects are northeast and northwest with elevations ranging from 450 to 4,900 feet. The climate is typical of western slopes of the Cascade Range with local influences from Mt. Baker and the Fraser River valley. Average annual rainfall is approximately 72 inches and varies from 60 to 110 inches. The forest vegetation zone is the west Cascade hemlock zone with the major timber type being Douglas fir, western red cedar, western hemlock, and silver fir at low to mid altitudes and silver fir, western hemlock, mountain hemlock, and Alaska cedar at higher elevations. A hardwood component of bigleaf maple, red alder, black cottonwood and paper birch is present at lower elevations. Unmanaged and managed mixed conifer/hardwood young (0 to 60 years) forest stands exist throughout the WAU while older remnants and isolated pockets of old-growth conifer species can be found at middle and higher elevations.

2) Identify any difference between the proposal location and the general description of the WAU or sub-basin(s).
Elevation ranges between 2,200 and 3,000 feet. The sale area is underlain by Chuckanut Formation sedimentary bedrock, primarily from sandstone.

b. What is the steepest slope on the site (approximate percent slope)? **85% on less than 2% of sale area.**

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. Note: The following table is created from state soil survey data. It is a roll-up of general soils information for the soils found in the entire sale area. It is only one of several site assessment tools used in conjunction with actual site inspections for slope stability concerns or erosion potential. It can help indicate potential for shallow, rapid soil movement, but often does not represent deeper soil sub-strata. The actual soils conditions in the sale area may vary considerably based on land-form shapes, presence of erosive situations, and other factors. The state soil survey is a compilation of various surveys with different standards.

State Soil Survey #	Soil Texture	% Slope	Acres	Mass Wasting Potential	Erosion Potential
3895	**Gravelly Silt Loam**	**8-30**	**14**	**Insignific't**	**Low**
6170	**Loam**	**8-30**	**31**	**Low**	**Low**
6171	**Loam**	**30-60**	**53**	**Medium**	**Medium**
7347	**Silt Loam**	**60-80**	**2**	**High**	**High**

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

1) Surface indications: **Evidence of an ancient large landslide can be seen above the sale area to the southwest, depositing rock rubble just outside the southwest boundaries. Aerial photo analysis shows more recent shallow rapid failures on inner gorge slopes and in bedrock hollows over Hedrick Creek. Warnick Watershed Analysis maps these areas as mass wasting map units (mwmu) #1, inner gorges, and # 11, deep seated landslides near streams. Both are high hazard areas bounded out of the sale. Portions of the west and north slopes of the sale area exceed 60% and fit into the definition of mwmu #7, a moderate hazard area. Failures in mwmu #7 are rare and of small volume.**

2) Is there evidence of natural slope failures in the sub-basin(s)?
☐No ☒Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:
Evidence of post glacial, bedrock-involved slides remain visible in the sub-basins and vicinity of the proposal. Slide Mountain is named for large slide scars visible on the mountain. Most recent slide activity has occurred in the inner gorges or incised channels of larger streams. These slides (mostly shallow-rapid) have occurred on slopes of 36 degrees or greater
As stated in the Warnick Watershed Analysis:
Shallow-rapid landslides in the inner gorges are typically small but there may be more than one associated with a single mapped occurrence… Soil thickness in the inner gorge ranges from shallow (less than 3.3 feet) to deep (several meters or more) and originate from a variety of origins (colluvial including landslide debris, glacial and Chuckanut bedrock). Only the steepest parts of the inner gorge areas (greater than 36 degrees) are the most unstable.

3) Are there slope failures in the sub-basin(s) associated with timber harvest activities or roads?
☐No ☒Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:
Associated management activity:
Of the 69 slides identified by the Warnick Watershed Analysis, 45 were considered related to either road or clearcut activity. The majority of these were shallow-rapid slides, with some of these having associated debris flows. Five of these 45 were found in inner gorges, and all but two of the 45 occurred on slopes 35 degrees (70%) or greater. Although this information generalizes the entire Warnick Watershed and is not specific to the Hedrick and West Cornell sub-basins, both sub-basins are considered very similar to the entire watershed.

4) Is the proposed site similar to sites where slope failures have occurred previously in the sub-basin(s)?
☒No ☐Yes, describe similarities between the conditions and activities on these sites:
Roads do not cross any mwmu's and sale boundaries avoid inner gorges and bedrock hollows.

5) Describe any slope stability protection measures (including sale boundary location, road, and harvest system decisions) incorporated into this proposal.

Sale boundaries and road construction are designed to avoid mwmu #1 and #11. In areas mapped as mwmu #7, non-merchantable vegetation will be left along seasonal streams and headwall areas. No roads will be constructed on mwmu #7 and shovel yarding will not be permitted.
Full suspension is required when yarding over seasonal streams in mwmu #7 and lead end suspension is required on all other areas to be cabled. Shovel yarding is restricted to stable slopes under 25% and is limited to the summer months. A no cut buffer of 100 feet protects the steeper slopes over the type 4 stream south of the unit. Roads will be crowned, ditched and cross-drained, surfaced with gravel and constructed according to Forest Practice standards. Road surface runoff will be collected into roadside ditches and discharged onto stable areas of the forest floor through ditches and cross-drain culverts. Road construction will be restricted between October 1 April 30th. Hauling will be limited during the same period. Exposed soils will be re-vegetated following completion of road construction. Rocked headwalls will be constructed at inlets to culverts and rock energy dissipaters placed at culvert outlets. After harvest is completed, Spurs A & B will be abandoned according to the NW Region Road Abandonment Policy. Landing debris will not be left in a perched position over steep slopes.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
Approx. acreage new roads: **1.8** Approx. acreage new landings: **2.0** Approx. acreage rock pit fills: **n/a** Fill source:
On-site native materials and rock from the Nolte Pit will be used for fill over culverts, road and landing construction.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Erosion could result from road and landing construction during periods of heavy rainfall or as a result of yarding during periods of saturation. Additionally, erosion could result if ditches and culverts are not properly installed and maintained during and after the harvest operation. Erosion could also occur if stream banks are damaged. Road use during unfavorable weather conditions may contribute to an increased potential for surface erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximate percent of proposal in permanent road running surface (includes gravel roads):
No impervious surfaces will remain after harvest. Less than 1% of proposal area will be covered in gravel surface. All new construction will be abandoned after harvest is complete.

h. Propose measures to reduce or control erosion, or other impacts to the earth, if any:
(Include protection measures for minimizing compaction or rutting.)
See B.1.d.5. above. Harvested area will be reforested with Douglas fir and/or western red cedar within two years of the expiration of the contract. Prudent road construction techniques and road maintenance schedules will be implemented on all active roads following harvest. Shovel yarding is restricted to areas on gentle slopes within 400 feet of roads and will be shut down in periods of unfavorable weather.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust from truck traffic, rock mining, crushing or hauling, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known. **Minor amounts of equipment exhaust from trucks, crew vehicles, chain saws and yarding equipment. Wood smoke if landing slash is burned. Dust from vehicle traffic during extended periods of dry weather.**

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. **No**

c. Proposed measures to reduce or control emissions or other impacts to air, if any: **Slash burning if done, will be done with a burning permit under smoke management guidelines. Dust abatement may require the application of commercial dust inhibiter or watering the roadway.**

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. (See attached timber sale map and forest practice base maps.)
A type 4 stream is at least 100 feet south of the south boundary and flows to West Cornell Creek. A short segment of type 5 channel crosses the CN-1000 road and feeds this type 4. Four small type 4 channels begin in a young stand east of the boundary and cross Spur A before converging into one channel to Cornell Creek. Two parallel type 5 streams begin in the far west portion of the sale area and converge into one channel before reaching Hedrick Creek. Two other channels appear within the sale area, but go subsurface before leaving the unit.

a) Downstream water bodies: **Hedrick and Cornell Creeks flow into the North Fork Nooksack River.**

b) Complete the following riparian & wetland management zone table:

Wetland, Stream, Lake, Pond, or Saltwater Name (if any)	Water Type	Number (how many?)	Avg RMZ/WMZ Width in Feet (per side for streams)
stream	**4**	**5**	**100**
stream	**5**	**3**	**0**

c) List RMZ/WMZ protection measures including silvicultural prescriptions, road-related RMZ/WMZ protection measures, and wind buffers. **No timber harvest will occur along the type4 channels crossing Spur A since timber was already removed during a private logging operation in the 1990's. No harvest will occur within 100 feet of the type 4 stream south of the unit. Non-merchantable trees and other vegetation will be left standing along type 5 channels. Spur B will not cross any typed waters. Culverts sufficient to carry the 100-year flood will be placed over each**

type 4 stream crossing Spur A and will be removed upon completion of the harvest. Roads have been located to avoid unstable slopes over typed waters.

2) Will the project require any work over, in, or adjacent to (within 200 feet) to the described waters? If yes, please describe and attach available plans.
☐No ☒Yes (See RMZ/WMZ table above and attached timber sale map.)
Description (include culverts): **See 3.a.1).c. above**

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material**. No significant fill amounts of fill material are anticipated as part of this proposal. Native fill will be used for culvert installation. About ten cubic yards for each culvert will come from on-site sources or be imported from the beginning of Spur B.**

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. (Include diversions for fish-passage culvert installation.)
☒No ☐Yes, description:

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
☒No ☐Yes, describe location:

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
☒No ☐Yes, type and volume:

7) Does the sub-basin contain soils or terrain susceptible to surface erosion and/or mass wasting? What is the potential for eroded material to enter surface water?

	Erosion Potential	%	Mass Wasting Potential	%
WAU:				
	Low	**26**	**Low**	**9**
	Medium	**32**	**Medium**	**28**
	High	**39**	**High**	**40**
	No data	**3**	**No Data**	**1**
			Insignificant	**22**
Hedrick:				
	Low	**28**	**Low**	**2**
	Medium	**25**	**Medium**	**25**
	High	**46**	**High**	**46**
	No Data	**1**	**Insignificant**	**27**
Cornell:				
	Low	**16**	**Low**	**11**
	Medium	**19**	**Medium**	**19**
	High	**65**	**High**	**65**
	No Data		**Insignificant**	**5**

***from state soil survey data on the DNR GIS data 08/13/2003**

There is low potential for deliverability due to location of sale boundaries and design of yarding plan. However, small amounts of sediment could be temporarily dislodged during placement of culverts over the four small type 4 streams on Spur A. Areas of high risk in the WAU surround larger stream channels. Seasonal streams have the most potential for sediment delivery should any disturbance expose the soil and channel water into steeper channels. However, it is not very probable due to the fact that the soils dominating the harvest area exhibit only a low to medium soil erosion and mass wasting potential.

8) Is there evidence of changes to the channels in the WAU and sub-basin(s) due to surface erosion or mass wasting (accelerated aggradations, erosion, decrease in large organic debris (LOD), change in channel dimensions)?
☐No ☒Yes, describe changes and possible causes: **See B.1.d.1,2 and 3**. **Steep and wide channel banks indicate substantial peak flow influences, especially during winter storm events. Some of the shallow-rapid slides observed have debris flows associated with them. These can be attributed mainly to road construction, the natural effects of gravity and cyclic storm events on slopes greater then 36 degrees.**

9) Could this proposal affect water quality based on the answers to the questions 1-8 above?
☐No ☒Yes, explain: **Some sediment could enter type five channels and get delivered downstream to type-four and three channels if harvest activities are conducted during periods of heavy rainfall. Yarding strategies, riparian buffers, road design and leave tree strategies will minimize this potential deliverability.**

10) What are the approximate road miles per square mile in the WAU and sub-basin(s)?
Are you aware of areas where forest roads or road ditches intercept sub-surface flow and deliver surface water to streams, rather than back to the forest floor?
☒No ☐Yes, describe:
Warnick WAU: 3.9 miles
Hedrick Sub-basin: 4.3 miles
W Cornell Sub-basin: 2.8 miles

11) Is the proposal within a significant rain-on-snow (ROS) zone? If not, **STOP HERE** and go to question B-3-a-13 below. Use the WAU or sub-basin(s) for the ROS percentage questions below.
☐No ☒Yes, approximate percent of WAU in significant ROS zone. **45%**
Approximate percent of sub-basin(s):
Hedrick: 52% **West Cornell: 53%**

12) If the proposal is within the significant ROS zone, what is the approximate percentage of the WAU or sub-basin(s) within the significant ROS zone (all ownerships) that is (are) rated as hydrologically mature?
It is no known what percent of the Hedrick and W Cornell sub-basins are hydrologically mature on private lands that dominate about half of Hedrick and the majority of W Cornell. However, 98% and 99% of DNR managed lands are hydrologically mature in the SROS zones of Hedrick and W Cornell sub-basins respectively.

13) Is there evidence of changes to channels associated with peak flows in the WAU or sub-basin(s)?
☐No ☒Yes, describe observations: **There are channels within the WAU that have experienced debris flows and show evidence of changes in peak flows and failures caused by drainage problems during peak flows. SeeB.1.d.3.**

14) Based on your answers to questions B-3-a-10 through B-3-a-13 above, describe whether and how this proposal, in combination with other past, current, or reasonably foreseeable proposals in the WAU and sub-basin(s), may contribute to a peak flow impact. **The Warnick Watershed Analysis resulted in a no hazard call or prescription relating to rain-on-snow event peak flows. Since the proposal is a regeneration cut, precipitation that is normally dissipated in the tree canopy will come in direct contact with the forest floor. As a result, surface run-off may peak sooner than in neighboring standing timber. This is expected primarily during storm events. However, the combination of a 100-foot no-cut riparian management zone with retained leave trees in clumps and individually scattered should help reduce the impacts to the overall peak flows within the WAU and sub-basins. Current DNR procedures require maintaining at least 50% of the WAU in age classes of at least 25 years.**

15) Is there water resource (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or downslope of the proposed activity that could be affected by changes in surface water amounts, quality, or movements as a result of this proposal?
☒No ☐Yes, possible impacts:

16) Based on your answers to questions B-3-a-10 through B-3-a-15 above, note any protection measures addressing possible peak flow/flooding impacts. **See B.1d (5), B.1.h., B.3.a.1.(c),. B.3.a.14)**
Roads will be constructed with cross drains that direct ditch water onto areas of the forest floor, not directly into streams. Conifer seedlings will be replanted within two years of final harvest. Prescriptions of the Warnick WA have been applied to all mass wasting management units in the vicinity of the sale area.

b. Ground Water:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known. **Road cross drains may capture shallow surface water and increase ground water recharge directly below culvert outlets. This will increase surface saturation in localized areas, but it is not expected to decrease ground water. Ultimately, all ground water will return to the sub-surface.**

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. **Small amounts of oil and other lubricants may be discharged as a result of heavy equipment use. No lubricants will be disposed of on site.**

3) Is there a water resource use (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in groundwater amounts, timing, or movements as a result this proposal?
☒No ☐Yes, describe:

a) Note protection measures, if any. **See B.3.1.16)**

c. Water Runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. **Sources will be rainfall and snow. Intercepted surface storm water from side slopes, and intercepted ground water from road cut banks will be collected into roadside ditches and discharged onto stable areas of the forest floor. Runoff eventually reaching typed waters could flow into the Nooksack River.**

2) Could waste materials enter ground or surface waters? If so, generally describe. **None is anticipated other than some logging slash in non-fish, seasonal streams or accidental, minor local spills of petroleum products may occur on roads or landings.**

a. Note protection measures, if any. **DNR staff will emphasize contractor compliance to current laws governing hazardous spills and disposal of hazardous wastes. Conform to timber sale contract regarding installation and maintenance of roadside ditches and cross drain culverts.**

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
(See surface water, ground water, and water runoff sections above, questions B-3-a-1-c, B-3-a-16, B-3-b-3-a, and B-3-c-2-a.)
Locations of culverts were chosen with the objective of reducing long direct entry segments by diverting water onto a stable slope rather than typed stream channels.

4. Plants

a. Check or circle types of vegetation found on the site:

☒deciduous tree: ☒alder, ☐maple, ☐aspen, ☐cottonwood, ☐western larch, ☐birch, ☐other:
☒evergreen tree: ☒Douglas fir, ☐grand fir, ☒Pacific silver fir, ☐ponderosa pine, ☐lodgepole pine, ☒western hemlock, ☐mountain hemlock, ☐Englemann spruce, ☐Sitka spruce, ☒red cedar, ☐yellow cedar, ☐other:
☒shrubs: ☒huckleberry, ☒salmonberry, ☐salal, ☐other:
☐grass
☐pasture
☐crop or grain
☐wet soil plants: ☐cattail, ☐buttercup, ☐bullrush, ☐skunk cabbage, ☐devil's club, ☐other:

☐water plants: ☐water lily, ☐eelgrass, ☐milfoil, ☐other:
☐other types of vegetation:
☐plant communities of concern:

b. What kind and amount of vegetation will be removed or altered? (See answers to questions A-11-a, A-11-b, B-3-a-1-b and B-3-a-1-c. The following sub-questions merely supplement those answers.) **Second-growth conifer and hardwoods will be removed from 94 net acres. Some immature trees and a few snags may be felled and/or left for safety or merchantability reasons. Associated understory vegetation may be disturbed by logging or road building activities within the sale boundary. The current stand will be replaced with a managed Douglas fir and/or western red cedar stand (hand planted) along with naturally regenerated western hemlock, Pacific silver fir, red alder, and bigleaf maple. This managed stand will retain dominant, codominant and/or structurally unique trees to increase horizontal and vertical diversity.**

1) Describe the species, age, and structural diversity of the timber types immediately adjacent to the removal area. (See landscape/WAU and adjacency maps on the DNR website at: http://www.dnr.wa.gov under "SEPA Center.") **Young planted conifer stands on private forestland form the north and east boundaries of the proposal area. These stands originated from private logging between 1996 and 2001. A stand comparable to the proposal stand is on both sides of the type-four stream along the south boundary. A private harvest done in 2001 lies just to the south of this RMZ. A 45 year, unmanaged, mixed conifer stand forms the east boundary.**

2) Retention tree plan: **Retention tree plan emphasizes the preservation of snags where practical, large structurally unique trees, habitat diversity, visual buffers, wind-firmness and distribution across the landscape. A minimum of 800 individually scattered and clumped live and dead standing "green" trees (equal to 7% of all trees >= 12" dbh) will remain throughout the harvest areas. Clumps account for 5 acres while scattered trees are just short of one acre of total area. DNR Forest Resource Inventory System was used as the basis for calculating minimum leave tree requirements, resulting in the retention of 8 trees per acre. RMZ buffers and areas of potential slope instability left out of the sale area will further enhance species diversity and provide "green-up" between harvest units.**

c. List threatened or endangered plant species known to be on or near the site.
DNR TRAX database indicates that there are no listed threatened or endangered species on or near the proposal area.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
See: B.3.a.1)c) & B.4.b.2) above. Native conifer species of similar site stock (~250 trees per acre) will be planted throughout the proposal area upon completion of the harvest. Naturally regenerated western hemlock and Pacific silver fir will also be managed with planted conifers.

5. Animal

a. Circle or check any birds animals or unique habitats which have been observed on or near the site or are known to be on or near the site:

birds: ☒hawk, ☐heron, ☐eagle, ☒songbirds, ☐pigeon, ☐other:
mammals: ☒deer, ☒bear, ☐elk, ☐beaver, ☐other:
fish: ☐bass, ☐salmon, ☐trout, ☐herring, ☐shellfish, ☐other:
unique habitats: ☐talus slopes, ☐caves, ☐cliffs, ☐oak woodlands, ☐balds, ☐mineral springs

b. List any threatened or endangered species known to be on or near the site (include federal- and state-listed species).
DNR TRAX database indicates that there are no listed threatened or endangered species on or near the proposal area.

c. Is the site part of a migration route? If so, explain.
☒Pacific flyway ☐Other migration route: Explain if any boxes checked: **All of Washington State is considered part of the Pacific flyway. No impacts are anticipated as a result of this proposal being completed.**

d. Proposed measures to preserve or enhance wildlife, if any: **See: B.3.a.1)c), B.4.b.2) & B.4.d. above. These measures should create a diversity of wildlife opportunities.**

1) Note existing or proposed protection measures, if any, for the complete proposal described in question A-11.
Species /Habitat: **None** Protection Measures: **N/A**

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. **Does not apply**

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. **Does not apply**

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: **None**

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. **There is a minimal spill hazard due to heavy equipment operations. There is also potential fire hazard if operating under fire weather condition.**

1) Describe special emergency services that might be required. **During harvest operations there may be a short term need for: Department of Ecology approved contract Haz-Mat clean up crews, Rural fire district crews, DNR forest fire response crews and Rural Fire District EMT's and Paramedics for responding to accidents or forest fires.**

2) Proposed measures to reduce or control environmental health hazards, if any: **See: B.3.c.2a) above and contract enforcement of forest fire protection rules.**

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? **None**

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from this site. **There will be localized equipment noise during daylight hours on a short-term basis from logging equipment: yarders, loaders, dozers, trucks, chain saws during road construction and logging.**

3) Proposed measures to reduce or control noise impacts, if any: **None**

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? (Site includes the complete proposal, e.g. rock pits and access roads.) **Commercial Forestry**

b. Has the site been used for agriculture? If so, describe. **No**

c. Describe any structures on the site. **No structures**

d. Will any structures be demolished? If so, what? **No**

e. What is the current zoning classification of the site? **Commercial Forestry District**

f. What is the current comprehensive plan designation of the site? **Commercial Forestry District**

g. If applicable, what is the current shoreline master program designation of the site? **Does not apply**

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify**. No**

i. Approximately how many people would reside or work in the completed project? **None**

j. Approximately how many people would the completed project displace? **None**

k. Proposed measures to avoid or reduce displacement impacts, if any: **None**

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: **This harvest has been designed to comply with current Whatcom County Comprehensive Plan, Forest Practice Regulations, the DNR Forest Resource Plan, and the DNR-US Fish and Wildlife Service Habitat Conservation Plan.**

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. **None**

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. **None**

c. Proposed measures to reduce or control housing impacts, if any: **None**

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principle exterior building material(s) proposed? **Does not apply**

b. What views in the immediate vicinity would be altered or obstructed? **None**

1) Is this proposal visible from a residential area, town, city, developed recreation site, or a scenic vista?
☒No ☐Yes, viewing location:

2) Is this proposal visible from a major transportation or designated scenic corridor (county road, state or interstate highway, US route, river, or Columbia Gorge SMA)?
☐No ☒Yes, scenic corridor name: **This proposal is visible from a very short segment of SR 542 near Glacier**.

3) How will this proposal affect any views described in 1) or 2) above? **This proposal will not affect any views.**

c. Proposed measures to reduce or control aesthetic impacts, if any: **The dispersal of harvest units on the ownership landscape over time allows for "green up" of previously harvested units or green belts between units. The use of wildlife tree patches and buffers around streams will break up the appearance of the harvest unit.**

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? **Does not apply**

b. Could light or glare from the finished project be a safety hazard or interfere with views? **Does not apply**

c. What existing off-site sources of light or glare may affect your proposal? **None**

d. Proposed measures to reduce or control light and glare impacts, if any: **None**

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? **Informal: horse riding; mountain biking; hunting; hiking; mushroom, brush, and berry picking.**

b. Would the proposed project displace any existing recreational uses? If so, describe: **No**

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: **None planned**

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for national, state, or local preservation registers known to be on or next to the site? If so, generally describe. **None on record.**

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site. **None on record.**

c. Proposed measures to reduce or control impacts, if any:
(Include all meetings or consultations with tribes, archaeologists, anthropologists or other authorities.) **Presented draft proposal to the Lummi Nation and Nooksack Tribe at yearly action plan meeting and sent updated maps to each during the time of field layout of roads and harvest boundaries. No tribal comments received. Conducted search of TRAX database.**

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any. **SR 542, Cornell Creek County Road**

1) Is it likely that this proposal will contribute to an existing safety, noise, dust, maintenance, or other transportation impact problem(s)? **No**

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? **No. The nearest public transit stop is in Kendall, 10 miles west of Cornell Road on SR 542.**

c. How many parking spaces would the completed project have? How many would the project eliminate? **None**

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private). **About 4,993 feet of new temporary forest access road will be constructed to allow the timber harvest and will be abandoned at completion of harvest. An additional 546 feet of existing road will be abandoned.**

1) How does this proposal impact the overall transportation system/circulation in the surrounding area, if at all? **N/A**

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. **No**

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur. **None after harvest is completed. During peak harvest activity (30-60 days) there is expected to be 15 log trucks and 3-5 pick up or crew vehicle round trips daily entering and leaving SR 542.**

g. Proposed measures to reduce or control transportation impacts, if any: **None**

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe. **No**

b. Proposed measures to reduce or control direct impacts on public services, if any. **None**

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other. **None**

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. **None**